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Posted		
Faxed		
Emailed	X	Hbrazil@ingeniaholidays.com.au
Courier		
By Hand		

Contact: Trystan Richards
Our Ref: P2108127JC43V01
Pages: 4 + Attachments
cc. Andrew Norris

10 October, 2024

Ingenia
Attention: Harry Brazil
Suite 1, 257 Gympie Road
Kedron, QLD - 4031.

Dear Harry,

RE: MERRY BEACH CARAVAN PARK, MONTHLY REVIEW OF LABORATORY RESULTS – SEWAGE TREATMENT AND REUSE SYSTEM – SEPTEMBER 2024

Further to recommendations in Merry Beach Annual Monitoring Report find below the monthly review of monitoring data for September 2 to September 30, 2024.

1. Collection of water samples

Water samples for selected monitoring points were collected on the following dates:

- September 26 – Eff1, GW1, GW2, GW3, GW4 and influent.
- September 30 - Drinking water samples from Creek Tanks, Main Tank and Pretty Beach Tank were sampled.
- Due to ongoing upgrade works to the system additional testing was conducted on for Eff1 on September 5, 13, 18 and 30.

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ABN 85 070 240 890 ACN 070 240 890

2. Review of monitoring results against POEO Act Environmental Protection License 5888 conditions

1. Effluent 1 (Eff1) (Monitoring Point 2)

Laboratory results were reviewed against License 5888 conditions for Eff1 (Monitoring Point 2), results are summarised in Table 1. Conclusions regarding Eff1 are:

- Laboratory results for Eff1 on 18 September 2024 indicate total nitrogen was 14 mg/L, exceeding license 5888 conditions. However, average for September 2024 were below the licence 5888 conditions.
- Laboratory results for Eff1 on 30 September 2024 indicate TSS (12 mg/L) exceeded licence 5888 conditions. However, average for September 2024 were below the licence 5888 conditions.
- Laboratory results for Eff1 on 30 September 2024 indicate FC (120 CFU/100 mL) exceeded licence 5888 conditions.
- All other laboratory results for Eff1 were within license conditions during September.

Table 1: Review of monitoring results for Eff1 against License 5888 conditions.

Chemical	Units	License 5888 Conditions – Eff1 (Point 2)			Sampling Date 2024	
		50 percentile concentration limit	90 percentile concentration limit	100 percentile concentration limit	Average September Results	Complies?
BOD	mg/L		20	30	3.2	✓
Faecal coliforms (FC)	CFU/100 mL	25		150	26.4	✘
Nitrogen (total)	mg/L		10	15	6.62	✓
Oil and grease	mg/L	1.5		5	1	✓
pH	pH units			6.5 – 8.5	7.74	✓
Phosphorous (total)	mg/L	5.5		10	1.16	✓
Total suspended solids (TSS)	mg/L		10	20	6.4	✓

3. Reuse Effluent (Eff2) (Monitoring Point 6)

Laboratory results were reviewed against License 5888 conditions for Eff2 (Monitoring Point 6). Conclusions regarding Eff2 are:

- Laboratory results for Eff2 (Monitoring Point 6) indicate no sample was collected due to "Not Operational".

From discussion with site operators MA understands the following:

- Chlorine dosing has been automated.
- All effluent is being pumped into a sewage tanker and taken offsite by a licensed contractor.
- Anoxic tank taken offline and used for storage (200kL).
- No irrigation fields or reuse are currently in use. Irrigation fields will be used once consistent compliance results and approval are achieved from NSW EPA.
- Eff1 samples are taken from treated effluent line into anoxic tank.

If Eff1 and Eff2 are no longer being used and is instead taken offsite by a licensed contractor, any exceedances mentioned above are irrelevant to the conditions of licence 5888.

We recommend that prior to effluent disposal all wastewater treatment and storage tanks are serviced and verified as operating in accordance with License 5888 requirements.

4. Review of monitored parameters

During September sampling period ground water monitoring points GW4 – GW6 and FRONT BORE were sampled.

Groundwater monitoring results were reviewed for September 2024.

- GW5 recorded its highest faecal coliform and enterococci results for the study period. This is likely associated with fauna in upslope National Park and are consistent with the high duck and Kangaroo population at the site.

All other laboratory results for groundwater monitoring for September 2024 are generally consistent with previous reported periods and will continue to be monitored.

5. Drinking water supply tank testing

Laboratory results were reviewed against National Drinking Water Quality Standards for drinking water at multiple tested tanks:

- All sample locations were within the standards for faecal coliforms with results (<1 CFU/100ml) for September 2024.
- All sample locations were within the standards for *E. coli* with results (<1 CFU/100mL) for September 2024.
- Beach Front Tank and Top Toilet Tank were not sampled due to "Tank not in use".

Any questions or concerns please contact our office.

For and on behalf of
MARTENS & ASSOCIATES PTY LTD

TRYSTAN RICHARDS
Environmental Consultant

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DAILY MONITORING RECORD – MERRY BEACH CARAVAN PARK SEWAGE TREATMENT AND RE-USE SCHEME

Start Date: 2/9/24 **Finish Date:** 8/9/24.

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time of Readings	8.40	7.45	6.35	7.35	10.00	10:05 Am	7.30
Meter 1 Reading MAGFLOW (L)	11.35	11.36	11.37	11.39	10.84	11.44	11.47
Meter 2 Reading (KL) – Non- Potable RU	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Meter 3 Reading (KL) – Irrigation	666.5	666.5	700.0	700.0	701.1	722.7	747.3
Meter 4 Reading (KL) – NPWS	37952	37952	37952	37952	37952	37952	37952
Meter 5 Reading (KL) - DLWC	37398	37398	37398	37398	37398	37398	37398.
Pump Well Effluent Appearance	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY
STP Status	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED
UV Lamp Status	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED
Chlorination System Status	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY
Irrigation Field Status	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING
Weather Conditions	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	SUNNY / CLOUDY / (RAIN)	SUNNY / (CLOUDY) / RAIN
Dissolved Oxygen in IDEA reactor (mg/L)	2.99 AIR.	2.94 AIR.	3.07 AIR	0.52 MX	2.32 AIR	3.49 AIR	2.27
pH in IDEA reactor / Effluent PW	7.27 /	7.41 /	7.39 /	7.40	7.45	7.36 /	7.35 /
Total Alkalinity in IDEA Reactor (mg/L)			373 mg/l	359 mg/l			364 mg/l.
30 minute sludge volume (%)	82%		78%.	68%			65%.
Chlorine (residual) onsite testing Eff2 (once per week)							
Initials	LUKE.	LUKE.	LUKE.	LUKE.	BRIAN	ABE	LUKE.

SLUDGE TRANSFER = 2/9/24, 3/9/24 (15000Lts pump out of IDEA), 4/9/24. & 5/9/24
x4 x1

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DAILY MONITORING RECORD – MERRY BEACH CARAVAN PARK SEWAGE TREATMENT AND RE-USE SCHEME

Start Date: 9/9/24 **Finish Date:** 15/9/24.

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time of Readings	8.50	7.35	12.35pm	8.35	10:18	10.40	7.20
Meter 1 Reading MAGFLOW (L)	11.49	11.51	11.53	11.55	11.57	11.61	11.66
Meter 2 Reading (KL) – Non- Potable RU	0.00 m	0.00 m	0.00 m	0.00	0.00	0.00	0.00
Meter 3 Reading (KL) – Irrigation	754.9	775.5	775.5	816.3	835.6	835.6	874.2
Meter 4 Reading (KL) – NPWS	37952	37952	37952	37952	37952	37952	37952
Meter 5 Reading (KL) - DLWC	37398	37398	37398	37398	37398	37398	37398
Pump Well Effluent Appearance	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY
STP Status	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	OK / (ALARMED)	(OK) / ALARMED
UV Lamp Status	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED
Chlorination System Status	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / (FAULTY)	OK / FAULTY
Irrigation Field Status	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING
Weather Conditions	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	SUNNY / (CLOUDY) / RAIN	(SUNNY) / CLOUDY / RAIN
Dissolved Oxygen in IDEA reactor (mg/L)	0.00 mix	1.05 mix	0.00m	0.00 m	0.00	0.00	2.9 mix.
pH in IDEA reactor / Effluent PW	7.20/	7.18/	7.19/	7.26/	7.22/	7.80 NO AIR	7.40/
Total Alkalinity in IDEA Reactor (mg/L)				448 mg/l			384 mg/l.
30 minute sludge volume (%)	60%.	55%.		55%.			60%
Chlorine (residual) onsite testing Eff2 (once per week)							
Initials	LUKE.	LUKE.	LUKE.	LUKE	ABE	BRIAN	LUKE.

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DAILY MONITORING RECORD – MERRY BEACH CARAVAN PARK SEWAGE TREATMENT AND RE-USE SCHEME

Start Date: 16/9/24 **Finish Date:** 22/9/24.

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time of Readings	7.40	7.20	7.30	7.30	10:55	10.30	7.40
Meter 1 Reading MAGFLOW (L)	11.69.	11.72	11.74	11.77	11.79	11.83	11.87
Meter 2 Reading (KL) – Non- Potable RU	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Meter 3 Reading (KL) – Irrigation	894.7	933.8	933.8	955.7	974.2	994.9	1031
Meter 4 Reading (KL) – NPWS	37952	37952	37952	37952	37952	~~9~~37952	37952
Meter 5 Reading (KL) - DLWC	37398.	37398	37398	37398	37398	37398	37398
Pump Well Effluent Appearance	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY
STP Status	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED
UV Lamp Status	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED
Chlorination System Status	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY
Irrigation Field Status	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING
Weather Conditions	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	SUNNY / (CLOUDY) / RAIN
Dissolved Oxygen in IDEA reactor (mg/L)	0.25 AIR	3.25	1.92	2.62 AIR	0.00 ~~AIR~~ MIX	0.00 ~~AIR~~	0.00
pH in IDEA reactor / Effluent PW	7.30	7.35 /	7.30 /	7.17 /	7.14	7.01	701 /
Total Alkalinity in IDEA Reactor (mg/L)			274 mg/l				302 mg/l.
30 minute sludge volume (%)		50%.	42%				75%.
Chlorine (residual) onsite testing Eff2 (once per week)							
Initials	LUKE.	LUKE.	LUKE	LUKE.	BRIAN	BRIAN	LUKE.

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DAILY MONITORING RECORD – MERRY BEACH CARAVAN PARK SEWAGE TREATMENT AND RE-USE SCHEME

Start Date: 23-9-24. **Finish Date:** 29-9-24.

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time of Readings	7.45	6.40	7.15.	7.45.	9.00	6.45	7.55
Meter 1 Reading MAGFLOW (L)	11.90.	11.92	11.95	11.98	12.00	12.03	12.08
Meter 2 Reading (KL) – Non- Potable RU	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Meter 3 Reading (KL) – Irrigation	1049	1049	1088	11.07	11.26	1126	1202
Meter 4 Reading (KL) – NPWS	37952	37952	37952	37952	0.00	0.00	0.00
Meter 5 Reading (KL) - DLWC	37398	37398	37398	37398	0.00	0.00	0.00
Pump Well Effluent Appearance	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY	(CLEAR) / CLOUDY / GREY
STP Status	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED
UV Lamp Status	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED	(OK) / ALARMED
Chlorination System Status	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY	(OK) / FAULTY
Irrigation Field Status	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING	OK / (WET) / PONDING
Weather Conditions	(SUNNY) / CLOUDY / RAIN	(SUNNY) / CLOUDY / RAIN	SUNNY / (CLOUDY) / RAIN	SUNNY / CLOUDY / (RAIN)	SUNNY / (CLOUDY) / RAIN	SUNNY / (CLOUDY) / RAIN	(SUNNY) / CLOUDY / RAIN
Dissolved Oxygen in IDEA reactor (mg/L)	0.00 MX	0.00	0.00	0.51	0.35	0.00	0.00
pH in IDEA reactor / Effluent PW	7.05 /	7.12 /	7.11 /	7.16 /	7.11 /	6.98	6.88 /
Total Alkalinity in IDEA Reactor (mg/L)			223 mg/L.				145 mg/L.
30 minute sludge volume (%)			80%.				80%.
Chlorine (residual) onsite testing Eff2 (once per week)							
Initials	LUKE.	LUKE.	LUKE.	LUKE.	LUKE.	LUKE.	LUKE.

USING NEW FLOW METRES FOR ALL IRRIGATION!

CHAIN OF CUSTODY

Mandatory Fields

CoC #: *(if applicable)*

CLIENT CODE:	IMGMER	*PROJECT MANAGER:	Gray Taylor	SAMPLER:	Peter Young
*CLIENT:	INGENIA HOLIDAYS MERRY BEACH	*PM MOBILE:	0422 685 594	SAMPLER MOBILE:	0404 455 064
OFFICE: *(Invoiced Office)*	Merry Beach Rd, Kioloa NSW 2539	ALS QUOTE # *(Client PL if blank)*	EW2023INGMER0002	PURCHASE ORDER NO.:	PO501061
PROJECT NO./PROJECT:	Merry Beach Fresh/ Drinking Water Monthly			SITE:	

*INVOICE TO: *(client default if nil)* payables@ingeniacommunities.com.au , Merrybeachmgr@ingeniaholidays.com.au , KBourke@ingeniacommunities.com.au ☐ CC Invoice to PM

*EMAIL REPORTS TO: *(default to PM if blank)* gtaylor@martens.com.au; mail@martens.com.au; young.pete7@gmail.com, Merrybeachmgr@ingeniaholidays.com.au, KBourke@ingeniacommunities.com.au, Bconnolly@ingeniaholidays.com.au, Trichards@martens.com.au, ejongsma@martens.com.au

BIOSECURITY

Country of Origin: *(if not Australia)*

*** STORAGE REQUIREMENTS** *Please check box.* → *Standard Storage time from receipt of samples: Waters - 3 weeks, Soils - 2 months*

☒ Standard Storage ☐ Extended Storage

Specify Disposal Date:

Note: Extended storage incurs a fee and requires a signed agreement.

*** TURNAROUND** *Please check box.* → *(Not all tests can be expedited, contact Client Services for more information)*

☒ 5+ days (no surcharge) ☐ 3 day (+15%) ☐ 2 day (+30%) ☐ 1 day (+50%)

***ANALYSIS REQUIRED**

(NB. ALS Quote No. and/or Analysis Suite Codes must be listed to attract suite/quoted price)
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).
Mark an X in the boxes below analysis to indicate the parameter listed above to be tested on that sample.

Comments:

ALS Use Only Lab ID	Sample ID	Depth	Date/Time	No. Bottles	MATRIX: Soil/Solid(S) Water(W) Sediments (SD), Dust (D), Product (P), Biota (B), Biosolid (BS)	MW006 (Ec) - E.coli	MW007 - Total Coliforms											Lab QC (additional bottles req.) Dup	Lab QC MS	Additional Information (Comment on hazards - e.g., asbestos, known high contamination)
	Beach Front Tank		30/9/24 N/A	1	W	X	X											☐	☐	
	Creek Tanks		1220	1	W	X	X											☐	☐	
	Main Tank		1230	1	W	X	X											☐	☐	
	Top Toilets Tank		N/A	1	W	X	X											☐	☐	
	Pretty Beach Tank		1235	1	W	X	X											☐	☐	
																		☐	☐	
																		☐	☐	
																		☐	☐	
																		☐	☐	
																		☐	☐	

Environmental Division Wollongong
Work Order Reference
EW2404393

Telephone : 02 42253125

Receipt Detail (Lab Use ONLY)

Chilling Method: Ice: Frozen / Melted — Ice Bricks: Frozen / Thawed — None

Sample Temp at Receipt: 4.0°C 4.5°C 4.6°C

Security Seal Intact *(circle)*: Yes / No / NA(None)

Carrier Details: ☐ Courier/Post ☐ Client

Con Note #

Packaging: *(Circle)* Hard Esky Foam Esky Box/Bag/Other

Count: # # #

Relinquished by: T. Ross Signature: Date/Time: 30/9/24

Received by: M SAMYONG Signature: Date/Time: 30/9/24

Relinquished by: Signature: Date/Time:

Received by: Signature: Date/Time: 1700

CERTIFICATE OF ANALYSIS

Work Order	: **EW2404393**	Page	: 1 of 2
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Fresh /Drinking Water Monthly	Date Samples Received	: 30-Sep-2024 17:00
Order number	: P0501061	Date Analysis Commenced	: 01-Oct-2024
C-O-C number	: ----	Issue Date	: 08-Oct-2024 16:40
Sampler	: Tom Roose		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Sarah Griffiths	Microbiologist	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- MF = membrane filtration
- CFU = colony forming unit
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- MW007 is ALS's internal code and is equivalent to AS4276.5.

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Sample ID	**Creek Tanks**	**Main tank**	**Pretty beach tank**	**----**	**----**
			Sampling date / time	30-Sep-2024 12:20	30-Sep-2024 12:30	30-Sep-2024 12:35	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**EW2404393-002**	**EW2404393-003**	**EW2404393-005**	**--------**	**--------**
				Result	Result	Result	----	----
MW006: Faecal Coliforms & E.coli by MF								
Escherichia coli	----	1	CFU/100mL	<1	<1	<1	**----**	**----**
MW007: Coliforms by MF								
Coliforms	----	1	CFU/100mL	<1	<1	<1	**----**	**----**

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) MW007: Coliforms by MF

(WATER) MW006: Faecal Coliforms & E.coli by MF

QUALITY CONTROL REPORT

Work Order	: **EW2404393**	Page	: 1 of 3
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Fresh /Drinking Water Monthly	Date Samples Received	: 30-Sep-2024
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No. of samples analysed	: 3		

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Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Sarah Griffiths	Microbiologist	Sydney Microbiology, Smithfield, NSW

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The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EW2404393**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Telephone	: 02 42253125
Project	: Merry Beach Fresh /Drinking Water Monthly	Date Samples Received	: 30-Sep-2024
Site	: ----	Issue Date	: 08-Oct-2024
Sampler	: Tom Roose	No. of samples received	: 3
Order number	: P0501061	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
MW006: Faecal Coliforms & E.coli by MF							
Sterile Plastic Bottle - Sodium Thiosulfate (MW006)							
Creek Tanks, Main tank, Pretty beach tank	**30-Sep-2024**	**----**	----	**----**	**01-Oct-2024**	01-Oct-2024	✓
MW007: Coliforms by MF							
Sterile Plastic Bottle - Sodium Thiosulfate (MW007)							
Creek Tanks, Main tank, Pretty beach tank	**30-Sep-2024**	**----**	----	**----**	**01-Oct-2024**	01-Oct-2024	✓

Quality Control Parameter Frequency Compliance

- **No Quality Control data available for this section.**

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.7
Coliforms by Membrane Filtration	MW007	WATER	AS 4276.5

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EW2404394**		
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
E-mail	: gtaylor@martens.com.au	E-mail	: Aneta.Prosaroski@ALSGlobal.com
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Facsimile	: ----	Facsimile	: W 02 42253128 N 02 44232083
Project	: Merry Beach Monitoring - September 2024	Page	: 1 of 4
Order number	: P2108127	Quote number	: EW2024INGMER0001 (EW24INGMER0001)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Tom Roose		

Dates

Date Samples Received	: 30-Sep-2024 17:00	Issue Date	: 30-Sep-2024
Client Requested Due Date	: 08-Oct-2024	Scheduled Reporting Date	: **08-Oct-2024**

Delivery Details

Mode of Delivery	: Sampled By ALS	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 4.3, 4.9, 4.8
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.**
- **Please direct any queries you have regarding this work order to the above ALS laboratory contact.**
- **Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA025H Suspended Solids - Standard Level	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EN67 PK - pH Field Tests - pH - ALS Wollongong	WATER - EP020 LL Oil and Grease Low Level	WATER - EP030 BOD	WATER - MW006 (FC) Thermotolerant Coliforms by Membrane Filtration	WATER - NT-11 Total Nitrogen and Total Phosphorus
EW2404394-001	30-Sep-2024 12:00	884/Eff1	✓	✓	✓	✓	✓	✓	✓
EW2404394-009	30-Sep-2024 12:10	Influent	✓	✓	✓	✓	✓		✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - MW006 (FC & Ec) Thermotolerant Coliforms & E.coli by Membrane
EW2404394-009	30-Sep-2024 12:10	Influent	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES FOR MERRY BEACH

- *AU Certificate of Analysis - NATA (COA)	Email	KBourke@ingeniacommunities.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	KBourke@ingeniacommunities.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Tax Invoice (INV)	Email	KBourke@ingeniacommunities.com.au
- Chain of Custody (CoC) (COC)	Email	KBourke@ingeniacommunities.com.au
- EDI Format - XTab (XTAB)	Email	KBourke@ingeniacommunities.com.au

Emily Jongsma

- *AU Certificate of Analysis - NATA (COA)	Email	ejongsma@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ejongsma@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ejongsma@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ejongsma@martens.com.au
- Chain of Custody (CoC) (COC)	Email	ejongsma@martens.com.au
- EDI Format - XTab (XTAB)	Email	ejongsma@martens.com.au

Gray Taylor

- *AU Certificate of Analysis - NATA (COA)	Email	gtaylor@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	gtaylor@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	gtaylor@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	gtaylor@martens.com.au
- Chain of Custody (CoC) (COC)	Email	gtaylor@martens.com.au
- EDI Format - XTab (XTAB)	Email	gtaylor@martens.com.au

Mail Martens

- *AU Certificate of Analysis - NATA (COA)	Email	mail@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mail@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mail@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mail@martens.com.au
- Chain of Custody (CoC) (COC)	Email	mail@martens.com.au
- EDI Format - XTab (XTAB)	Email	mail@martens.com.au

Manager (Reports & Invoice)

- *AU Certificate of Analysis - NATA (COA)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Tax Invoice (INV)	Email	merrybeachmgr@ingeniaholidays.com.au
- Chain of Custody (CoC) (COC)	Email	merrybeachmgr@ingeniaholidays.com.au
- EDI Format - XTab (XTAB)	Email	merrybeachmgr@ingeniaholidays.com.au

Payables

- A4 - AU Tax Invoice (INV)	Email	payables@ingeniacommunities.com.au

Trystan Richards

- *AU Certificate of Analysis - NATA (COA)	Email	trichards@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	trichards@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	trichards@martens.com.au
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- Chain of Custody (CoC) (COC)	Email	trichards@martens.com.au
- EDI Format - XTab (XTAB)	Email	trichards@martens.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EK055G: Ammonia as N by Discrete Analyser

(WATER) EK067G: Total Phosphorus as P by Discrete Analyser

(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser

(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser

(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser

(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C

(WATER) EP020: Oil and Grease (O&G)

(WATER) EP030: Biochemical Oxygen Demand (BOD)

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EW2404410**		
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Glenn Davies
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
E-mail	: gtaylor@martens.com.au	E-mail	: Glenn.Davies@ALSGlobal.com
Telephone	: 02 9476 9999	Telephone	: +61 2 4225 3125
Facsimile	: ----	Facsimile	: W 02 42253128 N 02 44232083
Project	: Merry Beach Monitoring	Page	: 1 of 4
Order number	: P2108127	Quote number	: EW2023INGMER0002 (EW23INGMER0002)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Merry Beach		
Sampler	: Client - Luke		

Dates

Date Samples Received	: 26-Sep-2024 13:00	Issue Date	: 26-Sep-2024
Client Requested Due Date	: 04-Oct-2024	Scheduled Reporting Date	: **04-Oct-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 5 / 5

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.**
- **Please direct any queries you have regarding this work order to the above ALS laboratory contact.**
- **Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA005P pH (Auto Titrator)	WATER - EA025H Suspended Solids - Standard Level	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EP020 LL Oil and Grease Low Level	WATER - EP030 BOD	WATER - MW006 (FC) Thermotolerant Coliforms by Membrane Filtration	WATER - NT-11 Total Nitrogen and Total Phosphorus
EW2404410-001	26-Sep-2024 00:00	884/Eff 1	✓	✓	✓	✓	✓	✓	✓
EW2404410-005	26-Sep-2024 10:30	884/GW4	✓		✓		✓	✓	✓
EW2404410-006	26-Sep-2024 10:15	884/GW5	✓		✓		✓	✓	✓
EW2404410-007	26-Sep-2024 10:00	884/GW6	✓		✓		✓	✓	✓
EW2404410-008	26-Sep-2024 00:00	FRONT BORE	✓		✓		✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - MW023 Enterococci - Enumeration by Membrane
EW2404410-005	26-Sep-2024 10:30	884/GW4	✓	✓
EW2404410-006	26-Sep-2024 10:15	884/GW5	✓	✓
EW2404410-007	26-Sep-2024 10:00	884/GW6	✓	✓
EW2404410-008	26-Sep-2024 00:00	FRONT BORE	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES FOR MERRY BEACH

- *AU Certificate of Analysis - NATA (COA)	Email	KBourke@ingeniacommunities.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	KBourke@ingeniacommunities.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Tax Invoice (INV)	Email	KBourke@ingeniacommunities.com.au
- Chain of Custody (CoC) (COC)	Email	KBourke@ingeniacommunities.com.au
- EDI Format - XTab (XTAB)	Email	KBourke@ingeniacommunities.com.au

Emily Jongsma

- *AU Certificate of Analysis - NATA (COA)	Email	ejongsma@martens.com.au
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- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ejongsma@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ejongsma@martens.com.au
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- EDI Format - XTab (XTAB)	Email	ejongsma@martens.com.au

Gray Taylor

- *AU Certificate of Analysis - NATA (COA)	Email	gtaylor@martens.com.au
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- Chain of Custody (CoC) (COC)	Email	mail@martens.com.au
- EDI Format - XTab (XTAB)	Email	mail@martens.com.au

Manager (Reports & Invoice)

- *AU Certificate of Analysis - NATA (COA)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	merrybeachmgr@ingeniaholidays.com.au
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- EDI Format - XTab (XTAB)	Email	merrybeachmgr@ingeniaholidays.com.au

Payables

- A4 - AU Tax Invoice (INV)	Email	payables@ingeniacommunities.com.au

Trystan Richards

- *AU Certificate of Analysis - NATA (COA)	Email	trichards@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	trichards@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	trichards@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	trichards@martens.com.au
- Chain of Custody (CoC) (COC)	Email	trichards@martens.com.au
- EDI Format - XTab (XTAB)	Email	trichards@martens.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EA005P: pH by PC Titrator
(WATER) EK055G: Ammonia as N by Discrete Analyser
(WATER) EK067G: Total Phosphorus as P by Discrete Analyser
(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser
(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser
(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser
(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C
(WATER) EP020: Oil and Grease (O&G)
(WATER) EP030: Biochemical Oxygen Demand (BOD)
(WATER) MW006: Thermotolerant Coliforms & E.coli by MF
(WATER) EA010P: Conductivity by PC Titrator
(WATER) MW023: Enterococci by Membrane Filtration

WATER ANALYSIS CHAIN OF CUSTODY

Project:	Merry Beach Monitoring – ~~July 2024~~			Laboratory:	ALS (Australian Laboratory Services)					Delivery Details	
Sampling Date:		Results Required by:		Address:	4/13 Geary Place, North Nowra, NSW 2541					Dispatch Date:	
Our reference:	P2108127	Our Contact:	Gray Taylor	Contact:		Phone:	(02) 4423 2063	Facsimile:	(02) 4423 2083	Shipment Method:	

	Sample ID	Number of Containers	Analysis Required (X)													
			pH	Conductivity	Suspended Solids	BOD_5	Phosphorous (total)	Nitrogen (total)	TKN	Ammonia	NOx	Faecal Col.	Enterococci	Oil and Grease	E. Coli	-
1	884/Eff1	26/9/24	X		X	X	X	X	X	X	X	X		X		
	~~884/Eff2~~	~~X~~	~~X~~												~~X~~	
2	~~884/GW1~~	~~X~~	~~X~~		~~X~~	~~X~~		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				
3	~~884/GW2~~	~~X~~	~~X~~		~~X~~	~~X~~		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				
4	~~884/GW3~~	~~X~~	~~X~~		~~X~~	~~X~~		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				
5	884/GW4	1030	X	X		X	X		X	X	X	X	X			
6	884/GW5	1015	X	X		X	X		X	X	X	X	X			
7	884/GW6	1000	X	X		X	X		X	X	X	X	X			
	FRONT BORE															
	~~Influent~~		X		X	X	X	X	X	X	X	X		X	X	

Notes: Fax (02 9476 8767) and email (gtaylor@martens.com.au; trichards@martens.com.au; mail@martens.com.au; young.pete7@gmail.com and merrybeachmgr@ingeniaholidays.com.au) results as soon as available, originals of laboratory reports to be posted to Merry Beach Caravan Park, KIOLOA, NSW, 2539.

26/9/24 1300.

Environmental Division
Wollongong
Work Order Reference
EW2404410

WATER ANALYSIS CHAIN OF CUSTODY

Project:	Merry Beach Monitoring – September 2024			Laboratory:	ALS (Australian Laboratory Services)					Delivery Details	
Sampling Date:		Results Required by:		Address:	4/13 Geary Place, North Nowra, NSW 2541					Dispatch Date:	
Our reference:	P2108127	Our Contact:	Gray Taylor	Contact:		Phone:	(02) 4423 2063	Facsimile:	(02) 4423 2083	Shipment Method:	

Sample ID	Number of Containers	Analysis Required (X)													
	30/9/24	pH FIELD	Conductivity FIELD	Suspended Solids	BOD_5	Phosphorous (total)	Nitrogen (total)	TKN	Ammonia	NOx	Faecal Col.	Enterococci	Oil and Grease	E. Coli	
884/Eff1	1200	X		X	X	X	X	X	X	X	X		X		
~~884/Eff2~~		~~X~~		~~X~~	NOT IN USE									X	
Influent	1210	X		X	X	X	X	X	X	X	X		X	X	

Notes: Fax (02 9476 8767) and email (gtaylor@martens.com.au; trichards@martens.com.au; mail@martens.com.au; young.pete7@gmail.com and merrybeachmgr@ingeniaholidays.com.au) results as soon as available, originals of laboratory reports to be posted to Merry Beach Caravan Park, KIOLOA, NSW, 2539.

temp
4.3, 4.9, 4.8
M STATHOPOULOS.
30/9/24
@ 1700

Environmental Division
Wollongong
Work Order Reference
EW2404394

Telephone : 02 42253125

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CERTIFICATE OF ANALYSIS

Work Order	: **EW2404410**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Glenn Davies
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: +61 2 4225 3125
Project	: Merry Beach Monitoring	Date Samples Received	: 26-Sep-2024 13:00
Order number	: P2108127	Date Analysis Commenced	: 27-Sep-2024
C-O-C number	: ----	Issue Date	: 04-Oct-2024 12:50
Sampler	: Client - Luke		
Site	: Merry Beach		
Quote number	: EW23INGMER0002		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Sarah Griffiths	Microbiologist	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- MF = membrane filtration
- CFU = colony forming unit
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- MW023 is ALS's internal code and is equivalent to AS4276.9.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	884/Eff 1	884/GW4	884/GW5	884/GW6	FRONT BORE
			Sampling date / time	26-Sep-2024 00:00	26-Sep-2024 10:30	26-Sep-2024 10:15	26-Sep-2024 10:00	26-Sep-2024 00:00
Compound	CAS Number	LOR	Unit	EW2404410-001	EW2404410-005	EW2404410-006	EW2404410-007	EW2404410-008
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.92	7.09	7.45	7.03	8.49
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	848	1110	954	4230
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	<5	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	1.12	0.53	13.2	0.45	0.84
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.47	0.31	<0.01	0.09	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.1	3.1	23.6	45.7	1.1
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	2.6	3.4	23.6	45.8	1.1
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.46	0.88	2.31	4.55	0.12
EP020: Oil and Grease (O&G)								
Oil & Grease	----	1.0	mg/L	<1.0	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	4	7	62	3	32
MW006: Thermotolerant Coliforms & E.coli by MF								
Thermotolerant Coliforms	----	1	CFU/100mL	<1	98	~22000	130	2100
MW023: Enterococci by Membrane Filtration								
Enterococci	----	1	CFU/100mL	----	180	9000	670	200

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EA005P: pH by PC Titrator

(WATER) EP030: Biochemical Oxygen Demand (BOD)

(WATER) EK055G: Ammonia as N by Discrete Analyser

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

(WATER) EK067G: Total Phosphorus as P by Discrete Analyser

(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser

(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser

(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser

(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C

(WATER) EP020: Oil and Grease (O&G)

(WATER) EA010P: Conductivity by PC Titrator

(WATER) MW023: Enterococci by Membrane Filtration

QUALITY CONTROL REPORT

Work Order	: **EW2404410**	Page	: 1 of 5
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Glenn Davies
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: +61 2 4225 3125
Project	: Merry Beach Monitoring	Date Samples Received	: 26-Sep-2024
Order number	: P2108127	Date Analysis Commenced	: 27-Sep-2024
C-O-C number	: ----	Issue Date	: 04-Oct-2024
Sampler	: Client - Luke		
Site	: Merry Beach		
Quote number	: EW23INGMER0002		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Sarah Griffiths	Microbiologist	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA005P: pH by PC Titrator (QC Lot: 6085505)									
ES2431540-006	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.19	8.51	3.8	0% - 20%
ES2431570-003	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.06	8.09	0.4	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 6085507)									
EW2404410-006	884/GW5	EA005-P: pH Value	----	0.01	pH Unit	7.45	7.61	2.1	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6085503)									
ES2431501-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2	2	0.0	No Limit
ES2431501-010	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2	2	0.0	No Limit
ES2431540-006	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2700	2660	1.6	0% - 20%
ES2431570-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1800	1800	0.4	0% - 20%
EW2404410-006	884/GW5	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1110	1120	0.3	0% - 20%
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6093742)									
ES2431908-008	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EW2404439-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6091182)									
EW2404369-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01 (0.10)*	mg/L	126	117	6.8	0% - 20%
EW2404439-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	8.29	8.13	2.0	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6091181)									
EW2404369-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EW2404439-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	32.4	32.5	0.1	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6091187)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6091187) - continued									
EW2404410-001	884/Eff 1	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.1	2.5	17.2	0% - 20%
ES2431908-013	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.5	0.5	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6091186)									
EW2404410-001	884/Eff 1	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.46	0.54	14.6	0% - 20%
ES2431908-013	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.02	0.04	38.0	No Limit
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 6085022)									
ES2431476-004	Anonymous	EP030: Biochemical Oxygen Demand	----	2	mg/L	2	7	111	No Limit
ES2431580-001	Anonymous	EP030: Biochemical Oxygen Demand	----	2	mg/L	22	21	4.7	0% - 50%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6085505)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	100	99.2	101
EA005P: pH by PC Titrator (QCLot: 6085507)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	99.7	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 6085503)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	103	89.9	110
				<1	2100 µS/cm	108	90.2	111
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6093742)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	102	83.0	129
				<5	1000 mg/L	96.6	82.0	110
				<5	879 mg/L	101	83.0	118
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6091182)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	105	90.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6091181)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	101	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6091187)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	89.7	69.0	123
				<0.1	1 mg/L	94.8	70.0	123
				<0.1	5 mg/L	88.6	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6091186)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	97.1	71.3	126
				<0.01	0.442 mg/L	94.3	71.3	126
				<0.01	1 mg/L	95.9	70.0	130
EP020: Oil and Grease (O&G) (QCLot: 6084557)								
EP020: Oil & Grease	----	1	mg/L	<1.0	5000 mg/L	97.5	80.0	120
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 6085022)								
EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	200 mg/L	95.0	74.0	112

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6091182)							
EW2404369-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	# Not Determined	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6091181)							
EW2404369-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	101	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6091187)							
ES2431908-014	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	88.9	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6091186)							
ES2431908-014	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	92.8	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EW2404410**	Page	: 1 of 6
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Telephone	: +61 2 4225 3125
Project	: Merry Beach Monitoring	Date Samples Received	: 26-Sep-2024
Site	: Merry Beach	Issue Date	: 04-Oct-2024
Sampler	: Client - Luke	No. of samples received	: 5
Order number	: P2108127	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EK055G: Ammonia as N by Discrete Analyser	EW2404369--001	Anonymous	**Ammonia as N**	7664-41-7	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Due for extraction	Days overdue	Analysis: Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
884/Eff 1, 884/GW4, 884/GW5, 884/GW6, FRONT BORE	----	----	----	27-Sep-2024	26-Sep-2024	**1**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
884/Eff 1, 884/GW4, 884/GW5, 884/GW6, FRONT BORE	**26-Sep-2024**	**----**	----	----	**27-Sep-2024**	26-Sep-2024	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
884/GW4, 884/GW5, 884/GW6, FRONT BORE	**26-Sep-2024**	**----**	----	----	**27-Sep-2024**	24-Oct-2024	✓
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H)							
884/Eff 1	**26-Sep-2024**	**----**	----	----	**02-Oct-2024**	03-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
884/Eff 1, 884/GW4, 884/GW5, 884/GW6, FRONT BORE	**26-Sep-2024**	**----**	----	**----**	**01-Oct-2024**	24-Oct-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
884/Eff 1, 884/GW4, 884/GW5, 884/GW6, FRONT BORE	**26-Sep-2024**	**----**	----	**----**	**01-Oct-2024**	24-Oct-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
884/Eff 1, 884/GW4, 884/GW5, 884/GW6, FRONT BORE	**26-Sep-2024**	**01-Oct-2024**	24-Oct-2024	✓	**01-Oct-2024**	24-Oct-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
884/Eff 1, 884/GW4, 884/GW5, 884/GW6, FRONT BORE	**26-Sep-2024**	**01-Oct-2024**	24-Oct-2024	✓	**01-Oct-2024**	24-Oct-2024	✓
EP020: Oil and Grease (O&G)							
Amber Jar - Sulfuric Acid or Sodium Bisulfate (EP020 LL)							
884/Eff 1	**26-Sep-2024**	**----**	----	**----**	**27-Sep-2024**	24-Oct-2024	✓
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural (EP030)							
884/Eff 1, 884/GW4, 884/GW5, 884/GW6, FRONT BORE	**26-Sep-2024**	**----**	----	**----**	**27-Sep-2024**	28-Sep-2024	✓
MW006: Thermotolerant Coliforms & E.coli by MF							
Sterile Plastic Bottle - Sodium Thiosulfate (MW006)							
884/Eff 1, 884/GW4, 884/GW5, 884/GW6, FRONT BORE	**26-Sep-2024**	**----**	----	**----**	**27-Sep-2024**	27-Sep-2024	✓
MW023: Enterococci by Membrane Filtration							
Sterile Plastic Bottle - Sodium Thiosulfate (MW023)							
884/GW4, 884/GW5, 884/GW6, FRONT BORE	**26-Sep-2024**	**----**	----	**----**	**27-Sep-2024**	27-Sep-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	5	47	**10.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	3	23	**13.04**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	47	**8.51**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	4	23	**17.39**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	3	12	**25.00**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	14	**21.43**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	47	**6.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Oil and Grease Low Level	EP020 LL	WATER	In house: Referenced to APHA 5520 B. Oil & grease is a gravimetric procedure to determine the amount of dissolved or emulsified oil & grease residue in an aqueous sample. The sample is serially extracted three times n-hexane. The resultant extracts are combined, dehydrated and concentrated prior to gravimetric determination. This method is compliant with NEPM Schedule B(3)
Biochemical Oxygen Demand (BOD)	EP030	WATER	In house: Referenced to APHA 5210 B. The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM Schedule B(3).
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.7
Enumeration of Enterococci by Membrane Filtration	MW023	WATER	AS4276.9

Preparation Methods	Method	Matrix	Method Descriptions

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EW2404131**		
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
E-mail	: gtaylor@martens.com.au	E-mail	: Aneta.Prosaroski@ALSGlobal.com
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Facsimile	: ----	Facsimile	: W 02 42253128 N 02 44232083
Project	: Merry Beach Monitoring - Extra Testing	Page	: 1 of 4
Order number	: P2108127	Quote number	: EW2024INGMER0001 (EW24INGMER0001)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Client - Luke		

Dates

Date Samples Received	: 05-Sep-2024 17:00	Issue Date	: 05-Sep-2024
Client Requested Due Date	: 13-Sep-2024	Scheduled Reporting Date	: **13-Sep-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.**
- **Please direct any queries you have regarding this work order to the above ALS laboratory contact.**
- **Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA005P pH (Auto Titrator)	WATER - EA025H Suspended Solids - Standard Level	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EP020 LL Oil and Grease Low Level	WATER - EP030 BOD	WATER - MW006 (FC) Thermotolerant Coliforms by Membrane Filtration	WATER - NT-11 Total Nitrogen and Total Phosphorus
EW2404131-001	05-Sep-2024 00:00	884/Eff1	✓	✓	✓	✓	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES FOR MERRY BEACH

- *AU Certificate of Analysis - NATA (COA)	Email	KBourke@ingeniacommunities.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	KBourke@ingeniacommunities.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Tax Invoice (INV)	Email	KBourke@ingeniacommunities.com.au
- Chain of Custody (CoC) (COC)	Email	KBourke@ingeniacommunities.com.au
- EDI Format - XTab (XTAB)	Email	KBourke@ingeniacommunities.com.au

Emily Jongsma

- *AU Certificate of Analysis - NATA (COA)	Email	ejongsma@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ejongsma@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ejongsma@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ejongsma@martens.com.au
- Chain of Custody (CoC) (COC)	Email	ejongsma@martens.com.au
- EDI Format - XTab (XTAB)	Email	ejongsma@martens.com.au

Gray Taylor

- *AU Certificate of Analysis - NATA (COA)	Email	gtaylor@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	gtaylor@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	gtaylor@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	gtaylor@martens.com.au
- Chain of Custody (CoC) (COC)	Email	gtaylor@martens.com.au
- EDI Format - XTab (XTAB)	Email	gtaylor@martens.com.au

Mail Martens

- *AU Certificate of Analysis - NATA (COA)	Email	mail@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mail@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mail@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mail@martens.com.au
- Chain of Custody (CoC) (COC)	Email	mail@martens.com.au
- EDI Format - XTab (XTAB)	Email	mail@martens.com.au

Manager (Reports & Invoice)

- *AU Certificate of Analysis - NATA (COA)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Tax Invoice (INV)	Email	merrybeachmgr@ingeniaholidays.com.au
- Chain of Custody (CoC) (COC)	Email	merrybeachmgr@ingeniaholidays.com.au
- EDI Format - XTab (XTAB)	Email	merrybeachmgr@ingeniaholidays.com.au

Payables

- A4 - AU Tax Invoice (INV)	Email	payables@ingeniacommunities.com.au

Trystan Richards

- *AU Certificate of Analysis - NATA (COA)	Email	trichards@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	trichards@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	trichards@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	trichards@martens.com.au
- Chain of Custody (CoC) (COC)	Email	trichards@martens.com.au
- EDI Format - XTab (XTAB)	Email	trichards@martens.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EK055G: Ammonia as N by Discrete Analyser

(WATER) EK067G: Total Phosphorus as P by Discrete Analyser

(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser

(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser

(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser

(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C

(WATER) EP020: Oil and Grease (O&G)

(WATER) EA005P: pH by PC Titrator

(WATER) EP030: Biochemical Oxygen Demand (BOD)

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)

CERTIFICATE OF ANALYSIS

Work Order	: **EW2404131**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Monitoring - Extra Testing	Date Samples Received	: 05-Sep-2024 17:00
Order number	: P2108127	Date Analysis Commenced	: 06-Sep-2024
C-O-C number	: ----	Issue Date	: 13-Sep-2024 14:36
Sampler	: Client - Luke		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- MF = membrane filtration
- CFU = colony forming unit
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- pH performed by ALS Wollongong via in-house method EA005FD and EN67 PK.
- Electrical conductivity performed by ALS Wollongong via in-house method EA010FD and EN67 PK.
- Sampling and groundwater depth measurements completed by ALS Wollongong via inhouse sampling method EN/67.11 Groundwater Sampling. Via Bailer Method.
- Sampling completed by ALS Wollongong in accordance with in-house sampling method EN/67.10 Wastewaters
- Sample collection of Ground Waters by in-house EN67 where the “surface layer of the aquifer was sampled”.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	884/Eff1	----	----	----	----
			Sampling date / time	05-Sep-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW2404131-001	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.86**	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	<5	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.27**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**2.80**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.5**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**4.3**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.63**	----	----	----	----
EP020: Oil and Grease (O&G)								
Oil & Grease	----	1.0	mg/L	<1.0	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	**4**	----	----	----	----
MW006: Thermotolerant Coliforms & E.coli by MF								
Thermotolerant Coliforms	----	1	CFU/100mL	<1	----	----	----	----

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP030: Biochemical Oxygen Demand (BOD)

(WATER) EK055G: Ammonia as N by Discrete Analyser

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

(WATER) EK067G: Total Phosphorus as P by Discrete Analyser

(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser

(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser

(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser

(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C

(WATER) EP020: Oil and Grease (O&G)

(WATER) EA005P: pH by PC Titrator

QUALITY CONTROL REPORT

Work Order	: **EW2404131**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Monitoring - Extra Testing	Date Samples Received	: 05-Sep-2024
Order number	: P2108127	Date Analysis Commenced	: 06-Sep-2024
C-O-C number	: ----	Issue Date	: 13-Sep-2024
Sampler	: Client - Luke		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA005P: pH by PC Titrator (QC Lot: 6046459)									
EW2404094-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.55	6.59	0.6	0% - 20%
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6048100)									
EN2410423-002	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
ES2429364-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
ES2429459-002	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6047281)									
ES2429421-012	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	13.2	13.0	0.9	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6047280)									
ES2429366-010	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2429421-012	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.68	0.68	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6047277)									
ES2429366-009	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.0	No Limit
ES2429421-011	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	20.3	20.0	1.3	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6047276)									
ES2429366-009	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.03	0.03	0.0	No Limit
ES2429421-011	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	3.53	3.52	0.0	0% - 20%
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 6039927)									
EW2404006-004	Anonymous	EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	<2	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6046459)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	100	99.2	101
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6048100)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	95.7	83.0	129
				<5	1000 mg/L	94.2	82.0	110
				<5	928 mg/L	92.3	83.0	118
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6047281)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	103	90.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6047280)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	104	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6047277)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	88.0	69.0	123
				<0.1	1 mg/L	109	70.0	123
				<0.1	5 mg/L	95.8	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6047276)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	87.4	71.3	126
				<0.01	0.442 mg/L	98.2	71.3	126
				<0.01	1 mg/L	99.5	70.0	130
EP020: Oil and Grease (O&G) (QCLot: 6050669)								
EP020: Oil & Grease	----	1	mg/L	<1.0	5000 mg/L	97.0	80.0	120
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 6039927)								
EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	200 mg/L	88.9	74.0	112

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6047281)							
ES2429421-012	Anonymous						

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6047281) - continued							
ES2429421-012	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	# Not Determined	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6047280)							
ES2429421-012	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	104	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6047277)							
ES2429366-010	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	84.1	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6047276)							
ES2429366-010	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	88.0	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EW2404131**	Page	: 1 of 5
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Telephone	: 02 42253125
Project	: Merry Beach Monitoring - Extra Testing	Date Samples Received	: 05-Sep-2024
Site	: ----	Issue Date	: 13-Sep-2024
Sampler	: Client - Luke	No. of samples received	: 1
Order number	: P2108127	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EK055G: Ammonia as N by Discrete Analyser	ES2429421--012	Anonymous	**Ammonia as N**	7664-41-7	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural 884/Eff1	----	----	----	10-Sep-2024	05-Sep-2024	**5**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) 884/Eff1	**05-Sep-2024**	**----**	----	**----**	**10-Sep-2024**	05-Sep-2024	×
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H) 884/Eff1	**05-Sep-2024**	**----**	----	**----**	**11-Sep-2024**	12-Sep-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) 884/Eff1	**05-Sep-2024**	**----**	----	**----**	**11-Sep-2024**	03-Oct-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) 884/Eff1	**05-Sep-2024**	**----**	----	**----**	**11-Sep-2024**	03-Oct-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) 884/Eff1	**05-Sep-2024**	**11-Sep-2024**	03-Oct-2024	✓	**11-Sep-2024**	03-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
884/Eff1	**05-Sep-2024**	**11-Sep-2024**	03-Oct-2024	✓	**11-Sep-2024**	03-Oct-2024	✓
EP020: Oil and Grease (O&G)							
Amber Jar - Sulfuric Acid or Sodium Bisulfate (EP020 LL)							
884/Eff1	**05-Sep-2024**	**----**	----	----	**12-Sep-2024**	03-Oct-2024	✓
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural (EP030)							
884/Eff1	**05-Sep-2024**	**----**	----	----	**06-Sep-2024**	07-Sep-2024	✓
MW006: Thermotolerant Coliforms & E.coli by MF							
Sterile Plastic Bottle - Sodium Thiosulfate (MW006)							
884/Eff1	**05-Sep-2024**	**----**	----	----	**06-Sep-2024**	06-Sep-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	5	**40.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	5	29	**17.24**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	16	**18.75**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	17	**17.65**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EW2404249**		
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
E-mail	: gtaylor@martens.com.au	E-mail	: Aneta.Prosaroski@ALSGlobal.com
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Facsimile	: ----	Facsimile	: W 02 42253128 N 02 44232083
Project	: Merry Beach Monitoring	Page	: 1 of 4
Order number	: P2108127	Quote number	: EW2024INGMER0001 (EW24INGMER0001)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Client, Harry Brazil		

Dates

Date Samples Received	: 13-Sep-2024 14:08	Issue Date	: 13-Sep-2024
Client Requested Due Date	: 20-Sep-2024	Scheduled Reporting Date	: **20-Sep-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 18.1, 17.5, 17.9
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.**
- **Please direct any queries you have regarding this work order to the above ALS laboratory contact.**
- **Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA005P pH (Auto Titrator)	WATER - EA025H Suspended Solids - Standard Level	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EP020 LL Oil and Grease Low Level	WATER - EP030 BOD	WATER - MW006 (FC) Thermotolerant Coliforms by Membrane Filtration	WATER - NT-11 Total Nitrogen and Total Phosphorus
EW2404249-001	13-Sep-2024 10:21	EFF 1	✓	✓	✓	✓	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES FOR MERRY BEACH

- *AU Certificate of Analysis - NATA (COA)	Email	KBourke@ingeniacommunities.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	KBourke@ingeniacommunities.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Tax Invoice (INV)	Email	KBourke@ingeniacommunities.com.au
- Chain of Custody (CoC) (COC)	Email	KBourke@ingeniacommunities.com.au
- EDI Format - XTab (XTAB)	Email	KBourke@ingeniacommunities.com.au

Emily Jongsma

- *AU Certificate of Analysis - NATA (COA)	Email	ejongsma@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ejongsma@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ejongsma@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ejongsma@martens.com.au
- Chain of Custody (CoC) (COC)	Email	ejongsma@martens.com.au
- EDI Format - XTab (XTAB)	Email	ejongsma@martens.com.au

Gray Taylor

- *AU Certificate of Analysis - NATA (COA)	Email	gtaylor@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	gtaylor@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	gtaylor@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	gtaylor@martens.com.au
- Chain of Custody (CoC) (COC)	Email	gtaylor@martens.com.au
- EDI Format - XTab (XTAB)	Email	gtaylor@martens.com.au

Harry Brazil

- *AU Certificate of Analysis - NATA (COA)	Email	hbrazil@ingeniaholidays.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	hbrazil@ingeniaholidays.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	hbrazil@ingeniaholidays.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	hbrazil@ingeniaholidays.com.au
- Chain of Custody (CoC) (COC)	Email	hbrazil@ingeniaholidays.com.au
- EDI Format - XTab (XTAB)	Email	hbrazil@ingeniaholidays.com.au

Mail Martens

- *AU Certificate of Analysis - NATA (COA)	Email	mail@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mail@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mail@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mail@martens.com.au
- Chain of Custody (CoC) (COC)	Email	mail@martens.com.au
- EDI Format - XTab (XTAB)	Email	mail@martens.com.au

Manager (Reports & Invoice)

- *AU Certificate of Analysis - NATA (COA)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Tax Invoice (INV)	Email	merrybeachmgr@ingeniaholidays.com.au
- Chain of Custody (CoC) (COC)	Email	merrybeachmgr@ingeniaholidays.com.au
- EDI Format - XTab (XTAB)	Email	merrybeachmgr@ingeniaholidays.com.au

Payables

- A4 - AU Tax Invoice (INV)	Email	payables@ingeniacommunities.com.au

Trystan Richards

- *AU Certificate of Analysis - NATA (COA)	Email	trichards@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	trichards@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	trichards@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	trichards@martens.com.au
- Chain of Custody (CoC) (COC)	Email	trichards@martens.com.au
- EDI Format - XTab (XTAB)	Email	trichards@martens.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EK055G: Ammonia as N by Discrete Analyser
(WATER) EK067G: Total Phosphorus as P by Discrete Analyser
(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser
(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser
(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser
(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C
(WATER) EP020: Oil and Grease (O&G)
(WATER) EA005P: pH by PC Titrator
(WATER) EP030: Biochemical Oxygen Demand (BOD)
(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

WATER ANALYSIS CHAIN OF CUSTODY

EXTRA TESTING

Project:	Merry Beach Monitoring – ~~September 2024~~			**Laboratory:**	ALS (Australian Laboratory Services)					**Delivery Details**	
Sampling Date:		**Results Required by:**		**Address:**	4/13 Geary Place, North Nowra, NSW 2541					**Dispatch Date:**	
Our reference:	P2108127	**Our Contact:**	Gray Taylor	**Contact:**		**Phone:**	(02) 4423 2063	**Facsimile:**	(02) 4423 2083	**Shipment Method:**	

Sample ID	Number of Containers	Analysis Required (X)													
		pH	Conductivity	Suspended Solids	BOD_5	Phosphorous (total)	Nitrogen (total)	TKN	Ammonia	NOx	Faecal Col.	Enterococci	Oil and Grease	E. Coli	-
884/Eff1	5/9/24	X		X	X	X	X	X	X	X	X		X		
~~884/Eff2~~	~~X~~	~~X~~												~~X~~	
~~Influent~~	~~X~~	~~X~~		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		~~X~~	~~X~~	

Notes: Fax (02 9476 8767) and email (gtaylor@martens.com.au; trichards@martens.com.au; mail@martens.com.au; young.pete7@gmail.com and merrybeachmgr@ingeniaholidays.com.au) results as soon as available, originals of laboratory reports to be posted to Merry Beach Caravan Park, KIOLOA, NSW, 2539.

Environmental Division
Wollongong
Work Order Reference
EW2404131

Telephone : 02 42253125

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MARTENS & ASSOCIATES P/L
ABN 85 070 240 890 ACN 070 240 890

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Oil and Grease Low Level	EP020 LL	WATER	In house: Referenced to APHA 5520 B. Oil & grease is a gravimetric procedure to determine the amount of dissolved or emulsified oil & grease residue in an aqueous sample. The sample is serially extracted three times n-hexane. The resultant extracts are combined, dehydrated and concentrated prior to gravimetric determination. This method is compliant with NEPM Schedule B(3)
Biochemical Oxygen Demand (BOD)	EP030	WATER	In house: Referenced to APHA 5210 B. The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM Schedule B(3).
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.7

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)

CERTIFICATE OF ANALYSIS

Work Order	: **EW2404249**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Monitoring	Date Samples Received	: 13-Sep-2024 14:08
Order number	: P2108127	Date Analysis Commenced	: 13-Sep-2024
C-O-C number	: ----	Issue Date	: 23-Sep-2024 12:45
Sampler	: Client, Harry Brazil		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Sarah Griffiths	Microbiologist	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- MF = membrane filtration
- CFU = colony forming unit
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- pH performed by ALS Wollongong via in-house method EA005FD and EN67 PK.
- Electrical conductivity performed by ALS Wollongong via in-house method EA010FD and EN67 PK.
- Sampling and groundwater depth measurements completed by ALS Wollongong via inhouse sampling method EN/67.11 Groundwater Sampling. Via Bailer Method.
- Sampling completed by ALS Wollongong in accordance with in-house sampling method EN/67.10 Wastewaters
- Sample collection of Ground Waters by in-house EN67 where the “surface layer of the aquifer was sampled”.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	EFF 1	----	----	----	----
			Sampling date / time	13-Sep-2024 10:21	----	----	----	----
Compound	CAS Number	LOR	Unit	EW2404249-001	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.77**	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	<5	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.07**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**3.62**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.0**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**4.6**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**1.26**	----	----	----	----
EP020: Oil and Grease (O&G)								
Oil & Grease	----	1.0	mg/L	<1.0	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	**2**	----	----	----	----
MW006: Thermotolerant Coliforms & E.coli by MF								
Thermotolerant Coliforms	----	1	CFU/100mL	**~9**	----	----	----	----

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP030: Biochemical Oxygen Demand (BOD)

(WATER) EK055G: Ammonia as N by Discrete Analyser

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

(WATER) EK067G: Total Phosphorus as P by Discrete Analyser

(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser

(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser

(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser

(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C

(WATER) EP020: Oil and Grease (O&G)

(WATER) EA005P: pH by PC Titrator

QUALITY CONTROL REPORT

Work Order	: **EW2404249**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Monitoring	Date Samples Received	: 13-Sep-2024
Order number	: P2108127	Date Analysis Commenced	: 13-Sep-2024
C-O-C number	: ----	Issue Date	: 23-Sep-2024
Sampler	: Client, Harry Brazil		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Sarah Griffiths	Microbiologist	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA005P: pH by PC Titrator (QC Lot: 6056124)									
EW2404251-005	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	5.95	5.96	0.2	0% - 20%
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6063985)									
ES2430234-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	10	8	25.4	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6065003)									
ES2430094-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01 (0.10)*	mg/L	55.8	54.4	2.5	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6065002)									
ES2430094-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01 (1.00)*	mg/L	108	109	1.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6065000)									
EW2404230-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.5)*	mg/L	62.8	62.4	0.6	0% - 20%
ES2430094-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (5.0)*	mg/L	122	120	1.2	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6065001)									
ES2430094-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (2.50)*	mg/L	19.3	21.8	12.4	No Limit
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 6056652)									
ES2430145-001	Anonymous	EP030: Biochemical Oxygen Demand	----	2	mg/L	246	222	10.5	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6056124)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6063985)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	96.0	83.0	129
				<5	1000 mg/L	89.0	82.0	110
				<5	879 mg/L	99.5	83.0	118
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6065003)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	96.4	90.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6065002)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	104	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6065000)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	109	69.0	123
				<0.1	1 mg/L	105	70.0	123
				<0.1	5 mg/L	99.2	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6065001)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	96.9	71.3	126
				<0.01	0.442 mg/L	91.6	71.3	126
				<0.01	1 mg/L	104	70.0	130
EP020: Oil and Grease (O&G) (QCLot: 6058478)								
EP020: Oil & Grease	----	1	mg/L	<1.0	5000 mg/L	94.8	80.0	120
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 6056652)								
EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	200 mg/L	104	74.0	112

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6065003)							
ES2430094-001	Anonymous						

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6065003) - continued							
ES2430094-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	# Not Determined	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6065002)							
ES2430094-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6065000)							
ES2430094-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	# Not Determined	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6065001)							
ES2430094-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	# Not Determined	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EW2404249**	Page	: 1 of 5
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Telephone	: 02 42253125
Project	: Merry Beach Monitoring	Date Samples Received	: 13-Sep-2024
Site	: ----	Issue Date	: 23-Sep-2024
Sampler	: Client, Harry Brazil	No. of samples received	: 1
Order number	: P2108127	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EK055G: Ammonia as N by Discrete Analyser	ES2430094--001	Anonymous	**Ammonia as N**	7664-41-7	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	ES2430094--001	Anonymous	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser	ES2430094--003	Anonymous	**Total Kjeldahl Nitrogen as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK067G: Total Phosphorus as P by Discrete Analyser	ES2430094--002	Anonymous	**Total Phosphorus as P**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
EFF 1	**13-Sep-2024**	**----**	----	**----**	**13-Sep-2024**	13-Sep-2024	✓
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H)							
EFF 1	**13-Sep-2024**	**----**	----	**----**	**18-Sep-2024**	20-Sep-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
EFF 1	**13-Sep-2024**	**----**	----	**----**	**19-Sep-2024**	11-Oct-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
EFF 1	**13-Sep-2024**	**----**	----	**----**	**19-Sep-2024**	11-Oct-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
EFF 1	**13-Sep-2024**	**19-Sep-2024**	11-Oct-2024	✓	**19-Sep-2024**	11-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
EFF 1	**13-Sep-2024**	**19-Sep-2024**	11-Oct-2024	✓	**19-Sep-2024**	11-Oct-2024	✓
EP020: Oil and Grease (O&G)							
Amber Jar - Sulfuric Acid or Sodium Bisulfate (EP020 LL)							
EFF 1	**13-Sep-2024**	**----**	----	----	**16-Sep-2024**	11-Oct-2024	✓
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural (EP030)							
EFF 1	**13-Sep-2024**	**----**	----	----	**14-Sep-2024**	15-Sep-2024	✓
MW006: Thermotolerant Coliforms & E.coli by MF							
Sterile Plastic Bottle - Sodium Thiosulfate (MW006)							
EFF 1	**13-Sep-2024**	**----**	----	----	**13-Sep-2024**	14-Sep-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	3	10	**30.00**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	12	**25.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	8	**37.50**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

CERTIFICATE OF ANALYSIS

Work Order	: **EW2404307**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Monitoring	Date Samples Received	: 18-Sep-2024 14:16
Order number	: P2108127	Date Analysis Commenced	: 19-Sep-2024
C-O-C number	: ----	Issue Date	: 26-Sep-2024 12:37
Sampler	: Client - Harry		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- MF = membrane filtration
- CFU = colony forming unit
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- pH performed by ALS Wollongong via in-house method EA005FD and EN67 PK.
- Electrical conductivity performed by ALS Wollongong via in-house method EA010FD and EN67 PK.
- Sampling and groundwater depth measurements completed by ALS Wollongong via inhouse sampling method EN/67.11 Groundwater Sampling. Via Bailer Method.
- Sampling completed by ALS Wollongong in accordance with in-house sampling method EN/67.10 Wastewaters
- Sample collection of Ground Waters by in-house EN67 where the “surface layer of the aquifer was sampled”.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	884/Eff1	----	----	----	----
				Sampling date / time	18-Sep-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EW2404307-001	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**7.74**	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		<5	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.34**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**11.3**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**2.7**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ **Total Nitrogen as N**	----	0.1	mg/L		**14.0**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**1.87**	----	----	----	----
EP020: Oil and Grease (O&G)									
Oil & Grease	----	1.0	mg/L		<1.0	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	----	2	mg/L		<2	----	----	----	----
MW006: Thermotolerant Coliforms & E.coli by MF									
Thermotolerant Coliforms	----	1	CFU/100mL		<1	----	----	----	----

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP030: Biochemical Oxygen Demand (BOD)

(WATER) EK055G: Ammonia as N by Discrete Analyser

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

(WATER) EK067G: Total Phosphorus as P by Discrete Analyser

(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser

(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser

(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser

(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C

(WATER) EP020: Oil and Grease (O&G)

(WATER) EA005P: pH by PC Titrator

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Oil and Grease Low Level	EP020 LL	WATER	In house: Referenced to APHA 5520 B. Oil & grease is a gravimetric procedure to determine the amount of dissolved or emulsified oil & grease residue in an aqueous sample. The sample is serially extracted three times n-hexane. The resultant extracts are combined, dehydrated and concentrated prior to gravimetric determination. This method is compliant with NEPM Schedule B(3)
Biochemical Oxygen Demand (BOD)	EP030	WATER	In house: Referenced to APHA 5210 B. The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM Schedule B(3).
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.7

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)

QUALITY CONTROL REPORT

Work Order	: **EW2404307**	Page	: 1 of 5
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Monitoring	Date Samples Received	: 18-Sep-2024
Order number	: P2108127	Date Analysis Commenced	: 19-Sep-2024
C-O-C number	: ----	Issue Date	: 26-Sep-2024
Sampler	: Client - Harry		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA005P: pH by PC Titrator (QC Lot: 6070582)									
ES2430852-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.07	6.08	0.2	0% - 20%
ES2430645-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.14	8.13	0.1	0% - 20%
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6076165)									
EN2411319-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	47	36	24.6	No Limit
ES2430690-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	5	<5	0.0	No Limit
ES2430808-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	67	58	13.2	0% - 50%
EW2404307-001	884/Eff1	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6073793)									
ES2430745-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01 (0.10)*	mg/L	404	420	3.9	0% - 20%
ES2430848-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.01	0.02	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6073794)									
ES2430745-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01 (0.10)*	mg/L	<0.10	<0.10	0.0	No Limit
ES2430848-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.24	0.24	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6073789)									
ES2430701-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (1.0)*	mg/L	10.1	9.6	5.4	0% - 50%
ES2430808-009	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (1.0)*	mg/L	131	126	3.3	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6073790)									
ES2430701-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.33	0.34	0.0	0% - 20%
ES2430808-009	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.10)*	mg/L	23.2	23.1	0.7	0% - 20%
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 6069748)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 6069748) - continued									
EW2404307-001	884/Eff1	EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	4	74.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6070582)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6076165)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	94.3	83.0	129
				<5	1000 mg/L	99.9	82.0	110
				<5	879 mg/L	111	83.0	118
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6073793)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	102	90.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6073794)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	103	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6073789)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	91.2	69.0	123
				<0.1	1 mg/L	101	70.0	123
				<0.1	5 mg/L	107	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6073790)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	94.2	71.3	126
				<0.01	0.442 mg/L	98.8	71.3	126
				<0.01	1 mg/L	106	70.0	130
EP020: Oil and Grease (O&G) (QCLot: 6076881)								
EP020: Oil & Grease	----	1	mg/L	<1.0	5000 mg/L	104	80.0	120
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 6069748)								
EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	200 mg/L	102	74.0	112

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6073793)							
ES2430745-001	Anonymous						

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6073793) - continued							
ES2430745-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	# Not Determined	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6073794)							
ES2430745-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	5 mg/L	107	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6073789)							
ES2430745-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	# Not Determined	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6073790)							
ES2430745-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	# Not Determined	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EW2404307**	Page	: 1 of 5
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Telephone	: 02 42253125
Project	: Merry Beach Monitoring	Date Samples Received	: 18-Sep-2024
Site	: ----	Issue Date	: 26-Sep-2024
Sampler	: Client - Harry	No. of samples received	: 1
Order number	: P2108127	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EK055G: Ammonia as N by Discrete Analyser	ES2430745--001	Anonymous	**Ammonia as N**	7664-41-7	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser	ES2430745--001	Anonymous	**Total Kjeldahl Nitrogen as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK067G: Total Phosphorus as P by Discrete Analyser	ES2430745--001	Anonymous	**Total Phosphorus as P**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural 884/Eff1	----	----	----	20-Sep-2024	18-Sep-2024	**2**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) 884/Eff1	**18-Sep-2024**	**----**	----	----	**20-Sep-2024**	18-Sep-2024	×
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H) 884/Eff1	**18-Sep-2024**	**----**	----	----	**24-Sep-2024**	25-Sep-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) 884/Eff1	**18-Sep-2024**	**----**	----	----	**24-Sep-2024**	16-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
884/Eff1	**18-Sep-2024**	**----**	----	**----**	**24-Sep-2024**	16-Oct-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
884/Eff1	**18-Sep-2024**	**23-Sep-2024**	16-Oct-2024	✓	**23-Sep-2024**	16-Oct-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
884/Eff1	**18-Sep-2024**	**23-Sep-2024**	16-Oct-2024	✓	**23-Sep-2024**	16-Oct-2024	✓
EP020: Oil and Grease (O&G)							
Amber Jar - Sulfuric Acid or Sodium Bisulfate (EP020 LL)							
884/Eff1	**18-Sep-2024**	**----**	----	**----**	**25-Sep-2024**	16-Oct-2024	✓
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural (EP030)							
884/Eff1	**18-Sep-2024**	**----**	----	**----**	**20-Sep-2024**	20-Sep-2024	✓
MW006: Thermotolerant Coliforms & E.coli by MF							
Sterile Plastic Bottle - Sodium Thiosulfate (MW006)							
884/Eff1	**18-Sep-2024**	**----**	----	**----**	**19-Sep-2024**	19-Sep-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	5	34	**14.71**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Oil and Grease Low Level	EP020 LL	WATER	In house: Referenced to APHA 5520 B. Oil & grease is a gravimetric procedure to determine the amount of dissolved or emulsified oil & grease residue in an aqueous sample. The sample is serially extracted three times n-hexane. The resultant extracts are combined, dehydrated and concentrated prior to gravimetric determination. This method is compliant with NEPM Schedule B(3)
Biochemical Oxygen Demand (BOD)	EP030	WATER	In house: Referenced to APHA 5210 B. The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM Schedule B(3).
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.7

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EW2404307**		
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
E-mail	: gtaylor@martens.com.au	E-mail	: Aneta.Prosaroski@ALSGlobal.com
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Facsimile	: ----	Facsimile	: W 02 42253128 N 02 44232083
Project	: Merry Beach Monitoring	Page	: 1 of 4
Order number	: P2108127	Quote number	: EW2024INGMER0001 (EW24INGMER0001)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Client - Harry		

Dates

Date Samples Received	: 18-Sep-2024 14:16	Issue Date	: 18-Sep-2024
Client Requested Due Date	: 26-Sep-2024	Scheduled Reporting Date	: **26-Sep-2024**

Delivery Details

Mode of Delivery	: Sampled By ALS	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 17.0, 16.9, 16.8 - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.**
- **Please direct any queries you have regarding this work order to the above ALS laboratory contact.**
- **Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA005P pH (Auto Titrator)	WATER - EA025H Suspended Solids - Standard Level	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EP020 LL Oil and Grease Low Level	WATER - EP030 BOD	WATER - MW006 (FC) Thermotolerant Coliforms by Membrane Filtration	WATER - NT-11 Total Nitrogen and Total Phosphorus
EW2404307-001	18-Sep-2024 00:00	884/Eff1	✓	✓	✓	✓	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES FOR MERRY BEACH

- *AU Certificate of Analysis - NATA (COA)	Email	KBourke@ingeniacommunities.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	KBourke@ingeniacommunities.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	KBourke@ingeniacommunities.com.au
- A4 - AU Tax Invoice (INV)	Email	KBourke@ingeniacommunities.com.au
- Chain of Custody (CoC) (COC)	Email	KBourke@ingeniacommunities.com.au
- EDI Format - XTab (XTAB)	Email	KBourke@ingeniacommunities.com.au

Emily Jongsma

- *AU Certificate of Analysis - NATA (COA)	Email	ejongsma@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ejongsma@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ejongsma@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ejongsma@martens.com.au
- Chain of Custody (CoC) (COC)	Email	ejongsma@martens.com.au
- EDI Format - XTab (XTAB)	Email	ejongsma@martens.com.au

Gray Taylor

- *AU Certificate of Analysis - NATA (COA)	Email	gtaylor@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	gtaylor@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	gtaylor@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	gtaylor@martens.com.au
- Chain of Custody (CoC) (COC)	Email	gtaylor@martens.com.au
- EDI Format - XTab (XTAB)	Email	gtaylor@martens.com.au

Mail Martens

- *AU Certificate of Analysis - NATA (COA)	Email	mail@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mail@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mail@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mail@martens.com.au
- Chain of Custody (CoC) (COC)	Email	mail@martens.com.au
- EDI Format - XTab (XTAB)	Email	mail@martens.com.au

Manager (Reports & Invoice)

- *AU Certificate of Analysis - NATA (COA)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	merrybeachmgr@ingeniaholidays.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	merrybeachmgr@ingeniaholidays.com.au
- A4 - AU Tax Invoice (INV)	Email	merrybeachmgr@ingeniaholidays.com.au
- Chain of Custody (CoC) (COC)	Email	merrybeachmgr@ingeniaholidays.com.au
- EDI Format - XTab (XTAB)	Email	merrybeachmgr@ingeniaholidays.com.au

Payables

- A4 - AU Tax Invoice (INV)	Email	payables@ingeniacommunities.com.au

Trystan Richards

- *AU Certificate of Analysis - NATA (COA)	Email	trichards@martens.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	trichards@martens.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	trichards@martens.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	trichards@martens.com.au
- Chain of Custody (CoC) (COC)	Email	trichards@martens.com.au
- EDI Format - XTab (XTAB)	Email	trichards@martens.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EK055G: Ammonia as N by Discrete Analyser
(WATER) EK067G: Total Phosphorus as P by Discrete Analyser
(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser
(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser
(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser
(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C
(WATER) EP020: Oil and Grease (O&G)
(WATER) EA005P: pH by PC Titrator
(WATER) EP030: Biochemical Oxygen Demand (BOD)
(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

WATER ANALYSIS CHAIN OF CUSTODY

EXTRA TESTING

Project:	Merry Beach Monitoring ~~August 2024~~			**Laboratory:**	ALS (Australian Laboratory Services)					**Delivery Details**	
Sampling Date:		**Results Required by:**		**Address:**	4/13 Geary Place, North Nowra, NSW 2541					**Dispatch Date:**	
Our reference:	P2108127	**Our Contact:**	Gray Taylor	**Contact:**		**Phone:**	(02) 4423 2063	**Facsimile:**	(02) 4423 2083	**Shipment Method:**	

Sample ID	Number of Containers	Analysis Required (X)													
		pH	Conductivity	Suspended Solids	BOD5	Phosphorous (total)	Nitrogen (total)	TKN	Ammonia	NOx	Faecal Col.	Enterococci	Oil and Grease	E. Coli	
884/Eff1	18/9/24	X		X	X	X	X	X	X	X	X		X		
~~884/Eff2~~		X		X										X	
~~Influent~~		X		X	X	X	X	X	X	X	X		X	X	

Notes: Fax (02 9476 8767) and email (gtaylor@martens.com.au; trichards@martens.com.au; mail@martens.com.au; young.pete7@gmail.com and merrybeachmgr@ingeniaholidays.com.au) results as soon as available, originals of laboratory reports to be posted to Merry Beach Caravan Park, KIOLOA, NSW, 2539.

M SAFFIOUNI. 18/9/24. 1200.

17.0, 16.9, 16.8

Environmental Division
Wollongong
Work Order Reference
EW2404307

Telephone : 02 42253125

CERTIFICATE OF ANALYSIS

Work Order	: **EW2404394**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Monitoring - September 2024	Date Samples Received	: 30-Sep-2024 17:00
Order number	: P2108127	Date Analysis Commenced	: 30-Sep-2024
C-O-C number	: ----	Issue Date	: 08-Oct-2024 17:06
Sampler	: Tom Roose		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Robert DaLio	Sampler	Laboratory - Wollongong, NSW
Sarah Griffiths	Microbiologist	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- MF = membrane filtration
- CFU = colony forming unit
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- pH performed by ALS Wollongong via in-house method EA005FD and EN67 PK.
- Electrical conductivity performed by ALS Wollongong via in-house method EA010FD and EN67 PK.
- Sampling and groundwater depth measurements completed by ALS Wollongong via inhouse sampling method EN/67.11 Groundwater Sampling. Via Bailer Method.
- Sampling completed by ALS Wollongong in accordance with in-house sampling method EN/67.10 Wastewaters
- Sample collection of Ground Waters by in-house EN67 where the “surface layer of the aquifer was sampled”.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	884/Eff1	Influent	----	----	----
			Sampling date / time	30-Sep-2024 12:00	30-Sep-2024 12:10	----	----	----
Compound	CAS Number	LOR	Unit	EW2404394-001	EW2404394-009	--------	--------	--------
				Result	Result	----	----	----
EA005FD: Field pH								
pH	----	0.1	pH Unit	**7.4**	**8.4**	**----**	**----**	**----**
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**12**	**306**	**----**	**----**	**----**
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**1.88**	**37.0**	**----**	**----**	**----**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**4.18**	**0.15**	**----**	**----**	**----**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**3.4**	**63.9**	**----**	**----**	**----**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**7.6**	**64.0**	**----**	**----**	**----**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**1.58**	**6.52**	**----**	**----**	**----**
EP020: Oil and Grease (O&G)								
Oil & Grease	----	1.0	mg/L	<1.0	**30.4**	**----**	**----**	**----**
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	**4**	**116**	**----**	**----**	**----**
MW006: Thermotolerant Coliforms & E.coli by MF								
Thermotolerant Coliforms	----	1	CFU/100mL	**120**	**41000000**	**----**	**----**	**----**
Escherichia coli	----	1	CFU/100mL	**----**	**8400000**	**----**	**----**	**----**

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP030: Biochemical Oxygen Demand (BOD)

(WATER) EK055G: Ammonia as N by Discrete Analyser

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

(WATER) EK067G: Total Phosphorus as P by Discrete Analyser

(WATER) EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser

(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser

(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser

(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C

(WATER) EP020: Oil and Grease (O&G)

QUALITY CONTROL REPORT

Work Order	: **EW2404394**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Contact	: Aneta Prosaroski
Address	: Merry Beach Road, Kioloa 2539	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: 02 9476 9999	Telephone	: 02 42253125
Project	: Merry Beach Monitoring - September 2024	Date Samples Received	: 30-Sep-2024
Order number	: P2108127	Date Analysis Commenced	: 30-Sep-2024
C-O-C number	: ----	Issue Date	: 08-Oct-2024
Sampler	: Tom Roose		
Site	: ----		
Quote number	: EW24INGMER0001		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Robert DaLio	Sampler	Laboratory - Wollongong, NSW
Sarah Griffiths	Microbiologist	Sydney Microbiology, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6097038)									
ES2432321-005	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	76	60	23.5	0% - 50%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6098139)									
ES2432088-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.02	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6098140)									
ES2432382-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.32	0.32	0.0	0% - 20%
ES2432088-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.07	0.07	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6098135)									
ES2432088-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.0	No Limit
ES2432382-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.6	0.6	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6098134)									
ES2432088-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.02	0.04	79.5	No Limit
ES2432382-003	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.27	0.28	4.0	0% - 20%
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 6094210)									
ES2432040-001	Anonymous	EP030: Biochemical Oxygen Demand	----	2	mg/L	4	4	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6097038)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	101	83.0	129
				<5	1000 mg/L	97.5	82.0	110
				<5	879 mg/L	90.0	83.0	118
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6098139)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	101	90.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6098140)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	101	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6098135)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	96.2	69.0	123
				<0.1	1 mg/L	96.8	70.0	123
				<0.1	5 mg/L	104	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6098134)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	96.2	71.3	126
				<0.01	0.442 mg/L	97.0	71.3	126
				<0.01	1 mg/L	108	70.0	130
EP020: Oil and Grease (O&G) (QCLot: 6092873)								
EP020: Oil & Grease	----	1	mg/L	<1.0	5000 mg/L	97.6	80.0	120
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 6094210)								
EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	200 mg/L	81.5	74.0	112

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6098139)							
ES2432088-002	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	106	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6098140)							
ES2432088-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	106	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6098135)							
ES2432088-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	91.1	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6098134)							
ES2432088-003	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	109	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EW2404394**	Page	: 1 of 4
Client	: **Ingenia Holidays Merry Beach**	Laboratory	: Environmental Division NSW South Coast
Contact	: Gray Taylor	Telephone	: 02 42253125
Project	: Merry Beach Monitoring - September 2024	Date Samples Received	: 30-Sep-2024
Site	: ----	Issue Date	: 08-Oct-2024
Sampler	: Tom Roose	No. of samples received	: 2
Order number	: P2108127	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005FD: Field pH								
Field Test Dummy Bottle (EN67 PK)								
884/Eff1,	Influent	**30-Sep-2024**	**----**	----	**----**	**30-Sep-2024**	----	**----**
EA025: Total Suspended Solids dried at 104 ± 2°C								
Clear Plastic Bottle - Natural (EA025H)								
884/Eff1,	Influent	**30-Sep-2024**	**----**	----	**----**	**03-Oct-2024**	07-Oct-2024	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G)								
884/Eff1,	Influent	**30-Sep-2024**	**----**	----	**----**	**03-Oct-2024**	28-Oct-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G)								
884/Eff1,	Influent	**30-Sep-2024**	**----**	----	**----**	**03-Oct-2024**	28-Oct-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G)								
884/Eff1,	Influent	**30-Sep-2024**	**03-Oct-2024**	28-Oct-2024	✓	**03-Oct-2024**	28-Oct-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G)								
884/Eff1,	Influent	**30-Sep-2024**	**03-Oct-2024**	28-Oct-2024	✓	**03-Oct-2024**	28-Oct-2024	✓
EP020: Oil and Grease (O&G)								
Amber Jar - Sulfuric Acid or Sodium Bisulfate (EP020 LL)								
884/Eff1,	Influent	**30-Sep-2024**	**----**	----	**----**	**04-Oct-2024**	28-Oct-2024	✓
EP030: Biochemical Oxygen Demand (BOD)								
Clear Plastic Bottle - Natural (EP030)								
884/Eff1,	Influent	**30-Sep-2024**	**----**	----	**----**	**02-Oct-2024**	02-Oct-2024	✓
MW006: Thermotolerant Coliforms & E.coli by MF								
Sterile Plastic Bottle - Sodium Thiosulfate (MW006)								
884/Eff1,	Influent	**30-Sep-2024**	**----**	----	**----**	**01-Oct-2024**	01-Oct-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	6	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	3	4	**75.00**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	6	**50.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Oil and Grease Low Level	EP020 LL	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Field Tests - Port Kembla	EN67 PK	WATER	Field determinations as per methods described in APHA. The analysis is performed in the field by ALS samplers. ALS NATA accreditation apply for this service.
Oil and Grease Low Level	EP020 LL	WATER	In house: Referenced to APHA 5520 B. Oil & grease is a gravimetric procedure to determine the amount of dissolved or emulsified oil & grease residue in an aqueous sample. The sample is serially extracted three times n-hexane. The resultant extracts are combined, dehydrated and concentrated prior to gravimetric determination. This method is compliant with NEPM Schedule B(3)
Biochemical Oxygen Demand (BOD)	EP030	WATER	In house: Referenced to APHA 5210 B. The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM Schedule B(3).
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.7

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)

WATER ANALYSIS CHAIN OF CUSTODY

Project:	Merry Beach Monitoring – September 2024			Laboratory:	ALS (Australian Laboratory Services)					Delivery Details	
Sampling Date:		Results Required by:		Address:	4/13 Geary Place, North Nowra, NSW 2541					Dispatch Date:	
Our reference:	P2108127	Our Contact:	Gray Taylor	Contact:		Phone:	(02) 4423 2063	Facsimile:	(02) 4423 2083	Shipment Method:	

Sample ID	Number of Containers	Analysis Required (X)													
	30/9/24	pH FIELD	Conductivity FIELD	Suspended Solids	BOD_5	Phosphorous (total)	Nitrogen (total)	TKN	Ammonia	NOx	Faecal Col.	Enterococci	Oil and Grease	E. Coli	
884/Eff1	1200	X		X	X	X	X	X	X	X	X		X		
~~884/Eff2~~		X		X	NOT IN USE									X	
Influent	1210	X		X	X	X	X	X	X	X	X		X	X	

Notes: Fax (02 9476 8767) and email (gtaylor@martens.com.au; trichards@martens.com.au; mail@martens.com.au; young.pete7@gmail.com and merrybeachmgr@ingeniaholidays.com.au) results as soon as available, originals of laboratory reports to be posted to Merry Beach Caravan Park, KIOLOA, NSW, 2539.

temp
4.3, 4.9, 4.8
M STATTON.
30/9/24 @ 1700

Environmental Division
Wollongong
Work Order Reference
EW2404394

Telephone : 02 42253125

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